

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No.: 09/996,672
Attorney Docket No.: Q67395

REMARKS

This amendment, submitted in response to the Office Action dated April 2, 2004, is believed to be fully responsive to each point of objection and rejection raised therein. Accordingly, favorable reconsideration is respectfully requested. Claims 1-41 are all the claims pending in the application.

Informalities:

The Office Action raises several informalities. The Examiner has rejected claims 5 and 7-8 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Specifically, the Examiner states that there is insufficient antecedent basis for the limitation “the laser” in claim 5 and for the limitation “the stimulating ray emitted from an LED” in claims 7-8. Corrections are set forth above.

Claim Rejections: Claims 1-3, 9-23, and 29-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogura (US 5,900,640) in view of Dandliker et. Al. (US 4,877,965, hereafter “Dandliker”), and Hosoi (US 4,880,987). The Examiner asserts that Ogura discloses all of the features of the claimed invention except for a step of irradiating the image carrier with a line beam, or detecting light released from the labeling substance after the completion of irradiation with the stimulating ray.

However, the Examiner asserts that it would have been obvious to a person skilled in the art to use a line beam depending on the needs of the particular application to perform stimulation and detection of the luminescent light emitted from an image carrier on a single, per pixel basis

or in a parallel basis using the line source and line detector. Also, the Examiner cites Hosoi for the use of a line beam stimulating source.

Applicant traverses the Examiner's rejection because the prior art references do not contain any suggestion (express or implied) that they be combined, or that they be combined in the manner suggested. The primary reference of Ogura teaches an image carrier that carries an image of a specimen labeled by a labeling substance (*see* col. 5, ln. 4-7, Ogura). By contrast, the claimed invention irradiates the image carrier with a line beam of the stimulating ray to excite the labeling substance. According to Dandliker, a single pulse from a laser is used to excite fluorescence from a microscopic spot on the specimen (*see* col. 2, ln. 53-55, Dandliker).

Also, Dandliker allows high quality optical imaging of the fluorescent point source by using electro-optic modulators which are made of crystals which are cubic and hence isotropic when unstressed (*see* col. 2, ln. 27-32, Dandliker) using a carefully controlled timing based on fluorescent and ambient light decay. By contrast, Hosoi teaches stored signals are sequentially read out by the scanning circuit and read-out of one linear exposed portion (corresponding to one scanning line) of the stimuable phosphor sheet (*see* col. 5, ln. 35-39, Hosoi). Also, the claimed invention has a stimulation and detection step of irradiating the image carrier with a line beam of the stimulating ray to excite the labeling substance of multiple points and photoelectrically detect light released from the labeling substance after the completion of irradiation with the stimulating ray. It is evident that Dandliker lacks a line source which would not make it feasible to combine the cubic source of Dandliker with the line source of Hosoi and the claimed invention. At a minimum, Dandliker's emphasis on a controlled spot for purposes of noise elimination (*see* col.

2, ln. 6-15, Dandliker) would appear contrary to the introduction of multiple pixel stimulation that would increase ambient light noise.

Hosoi is a stimulating x ray source. Specifically, Hosoi teaches a radiation image read-out apparatus comprising a stimulating ray source for emitting stimulating rays to a stimuable phosphor sheet carrying a radiation image stored (*see* abstract, Hosoi). This is different from the analysis of various proteins as taught by the Ogura reference. Therefore, the references are insufficiently analogous to warrant combination of the references.

Additionally, Ogura has the object to provide multiple stimulants for purposes of reading fluorescent dyes added to a gel support as well as radioactive dyes provided to a stimuable phosphor. To accommodate both reading apparatuses in a small space, spot excitation and filtering are performed (*see* col. 4, ln. 9-11, Ogura). Using a line source in this invention would undermine the ability to provide multiple read outs. The light source devices are not interchangeable as suggested by the Examiner in view of these objects.

Applicant further submits that the time delay of Dandliker would not be conducive to the substantial separation between the light emission surface and amplifier in Ogura. In particular, the stimulated light would be attenuated in view of the optical distance and further attenuation in time delay would not be conducive to operation of Ogura.

Furthermore, present invention is directed to a method and apparatus for producing low noise image data rapidly and with a simple operation by detecting residual fluorescence emission or residual stimulated emission. The present invention is different from Ogura or Hosoi. In these references, stimulated emission or fluorescence emission is released from the labeling

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substance when a labeling substance is being irradiated with a stimulating ray is detected to produce image data, it is obvious for one with ordinary skill in the art that any teaching obtained from Ogura or Hosoi cannot be applied to detect residual fluorescence emission or residual stimulated emission.

To the contrary, although residual fluorescence emission is detected in Dandliker, a spot-like stimulating ray is used and Dandliker neither discloses nor suggests the use of a line beam of a stimulating ray to excite a labeling substance.

The Examiner is therefore respectfully requested to withdraw the § 103(a) rejection from independent claims 1 and 2 and the claims that depend therefrom. Additionally, claims 4, 6, 8, 24, 26, and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogura, Dandliker, and Hosoi as applied above, and further in view of Kawajiri (US 4,922,103). We propose that these claims are patentable at least by virtue of their dependency on independent claims 1 and 21. Kawajiri does not make up for the above deficiencies of the primary combination.

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Conclusion: In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


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